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Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: Notice of Ex Parte Presentation, *Wireless E911 Location Accuracy Requirements*, Public Safety Docket No. 07-114

Dear Ms. Dortch:

On November 28, 2018, Polaris Wireless, Inc. (Polaris Wireless) executives Tarun Bhattacharya, Chief Technology Officer, and Karl Kessenich, Executive Director of Business Development, and James Arden Barnett, Jr. of this firm met at the request of the Public Safety and Homeland Security Bureau (PSHSB) to discuss technical questions about Polaris Wireless's solution for determining altitude for 9-1-1. The following persons from PSHSB were present in the room or on the telephone for the discussion:

David Furth, Deputy Bureau Chief
Michael Wilhelm, Chief of the Policy and Licensing Division
John Evanoff, Deputy Chief, Policy and Licensing Division
Erika Olsen, Senior Legal Advisor
Dr. Rasoul Safavian, Electrical Engineer
Brenda Boykin, Attorney Advisor
Austin Randazzo, Attorney Advisor
Nellie Foosaner, Attorney Advisor

The Bureau asked whether Polaris Wireless has conducted any testing with iPhones. Polaris Wireless has developed and tested a test application for iOS devices. In fact, the Polaris Wireless representatives both had test applications running on iPhone devices available for demonstration of vertical location. Internal testing has included numerous iPhone models (iPhone 6/6

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Plus, iPhone 6S/6S Plus, iPhone SE, iPhone 7/7 Plus, iPhone 8) and iOS versions (10, 11, and 12). Performance is similar to results achieved in Stage Z testing with Android devices, particularly devices using Bosch barometric sensors, which is the sensor used in Apple devices. Polaris Wireless technology can achieve a vertical location benchmark metric of 3 meters on 80% of fixes for E9-1-1 calls, including iPhones.

The Bureau also asked for a clarification of Polaris Wireless's 'limited compensation' results that were presented in the vendor commentary addendum to the Stage Z report. The Polaris Wireless barometric process runs continuously in the background although this feature was not enabled for Stage Z testing. To illustrate performance with such compensation, Polaris Wireless presented the Test Bed with additional data for consideration after testing was completed and prior to release of Stage Z performance results.

For simplicity and using only actual Stage Z call test data, sensor bias adjustments were made once per month for the three month testing, not continuously in real-time, which is why the term 'limited' was used. As stated in Reply Comments submitted on October 11, 2018¹, Polaris Wireless engaged an industry expert who verified the legitimacy of the methodology and process used by Polaris Wireless to emulate these results. Also, Polaris Wireless clarified that their barometric sensor bias compensation is purely software-based and does not require special hardware or building data.

Polaris Wireless welcomes the opportunity for additional independent testing but affirms that no additional testing or data is necessary to establish the z-axis benchmark. Stage Z testing is not yet scheduled and is not even targeted until the end of the next year, presenting an unnecessary delay to proceed with proposed rulemaking on this matter.

Polaris Wireless clarified that it uses publicly available weather data, primarily from airports, which can be supplemented with non-proprietary commercial off-the-shelf weather stations wherever needed to verify public reference data and improve accuracy. A few of these stations in areas far from airports would suffice to achieve floor level accuracy in major markets.

¹ Reply Comments of Polaris Wireless, Inc. to the Stage Z Test Report, p. 2 (October 11, 2018)

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Regarding cost basis, the Polaris Wireless z-axis solution is objectively affordable. The solution is software-based, is inherently highly scalable, does not require hardware in networks or markets, does not require anything special in devices beyond implementation of adopted 3GPP and OMA standards, and is instantly available and deployable throughout a carrier's nationwide network.

Polaris Wireless appreciates the opportunity to meet with the Bureau and answer its technical questions. Polaris Wireless, based on the current report and supplemented data and information, strongly supports action to establish the z-axis benchmark as soon as possible.

Pursuant to Section 1.1206(b) of the Commission's Rules, this submission is being filed for inclusion in the public record of the referenced proceeding.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "James Arden Barnett, Jr.", with a stylized flourish at the end.

James Arden Barnett, Jr.
Rear Admiral USN (Retired)

cc: David Furth
Michael Wilhelm
John Evanoff
Dr. Rasoul Safavian
Erika Olsen
Brenda Boykin
Austin Randazzo
Nellie Foosaner